WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 7.523
Volume 6, Issue 8, 1540-1544. Research Article ISSN 2277– 7105

EVALUATION OF ANALGESIC ACTIVITY OF BRUHAT HINGULESHWARA RASA

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Article Received on
31 May 2017,
Revised on 21 June 2017,
Accepted on 11 July 2017
DOI: 10.20959/wjpr20178-9028

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ABSTRACT

Abnormal food habits, style of living, hurry and worry etc. factors disturbs Jatharagni and health, which leads to jwara (fever) & vedana (pain). Bruhat Hinguleshwara Rasa is mentioned in Bhaisajya Ratnavali having a multidimensional therapeutic action i.e. Vedananashak & this activity have encouraged to evaluate the analgesic activity of Bruhat Hinguleshwara Rasa. Albino rats were divided into three groups and distributed 06 in each group. Group-I (Test drug), Group-II (Standard drug) and Group-III (Propylene glycol). Analgesic Activity was tested by Tail Flick method. Significant analgesic activity was observed in Test Drug (GI), and Standard Drug (GII). But in Test Drug (GI) it was highly significant than Control (GIII). In test drug analgesic activity was observed from 0.5thhr to 6thhr while in standard it was from 0.5thhr to 5th hr. Bruhat Hinguleshwara Rasa has shown significant and sustained Analgesic Activity. This study has provided evidence base & given scope for clinical research.

KEYWORDS: Bruhat Hinguleshwara, Rasa, Propylene glycol, Paracetamol, Analgesic activity.

INTRODUCTION

Acharya Charaka in Charaka Samhita Shareera Sthana, has used the word vedana in the sense of 'Sensation'.[1] According to him, vedana is of two types; Sukhatmakavedana and Dukhatmakavedana. Dukhatmakavedana is considered as roga and needs treatment. The mind and the body together with the sense organs are the sites of manifestation of vedana. However the parts of the body which do not have any consciousness like kesha, loma, nakha, anna, mala, drava mala and objects of senses are excluded.[2]

The English word pain is derived from the Greek "Poine" and Latin "Poene" meaning penalty or punishment. Pain is probably the most fundamental and primitive sensation, distributed more or less all over the body. It is protective in nature and always indicates some serious trouble in the locality, such as a structural damage or some sort of serious functional or metabolic derangement.[3]

MATERIALS AND METHODS[4,5,6,7]

Materials

Bruhat Hinguleshwara Rasa (test drug), Paracetamol (standard drug), Propylene glycol(control vehicle), Wister Strain Albino rats.

Methods

Tail Flick method The animals were held in left hand with tail extended. Lower 5cm portion of tail is marked. Then the marked portion is dipped in a beaker of water maintained with 55 ± 0.5^{0}C. Reaction time recorded with stop watch. Determination of reaction time periodically after oral administration of test drug dose at 0, 1, 2, 3, 4, 5, 6 hrs. After recording the time tail is carefully dried. Cut off time of the immersion is 15 seconds, to avoid injury to the tail.

The animals were selected from central animal house of B.L.D.E.A.'s A.V.S Ayurveda Mahavidyalaya, Bijapur, considering inclusive and exclusive criteria.

Inclusive Criteria: Adult healthy male albino rats. Albino rats weighing 150-200gms. Albino rats between 90-120 days.

Exclusive Criteria: Unhealthy Albino rats. Weight range below 150 gms and above 200 gms. Female Albino rats. Albino rats of age below 90days and above 120 days.

The animals were maintained under strict laboratory condition with controlled environment of temperature, humidity, light and dark cycles. Rats were fed with balanced pellet diet as prescribed by CFTRI, Mysore (Central Food Technological Research Institute) and water adlibitum. Maximum number 03 animals per cage were maintained. Animals under different groups of experiments were caged separately.

Sample size

18 albino rats were taken for the experimental study, distributed 6 in each group. groups were taken for analgesic study.

Study groups

GroupI : Test drug Bruhat Hinguleshwara Rasa

GroupII : Standard drug Paracetamol

GroupIII : Control Propylene glycol

Dosage and mode of drug administration

Animal dose = Human dose x 0.018.

1. Propylene glycol(0.5ml/200 gm rat).
2. Bruhat Hinguleshwara Rasa (4.5mg/200 gm rat).
3. Paracetamol(9mg/200 gm rat).

Precaution measures during experimental study

i. After recording the time tail is carefully dried.

ii. Cut off time of the immersion is 15seconds, to avoid injury to the tail.

Table no: 1 showing Drug Schedule

Sl no	Group	No of Animals	Drug	Dose per 200gm rats	Pharmaceutical form	Route
I	Test Drug	6	Bruhat Hinguleshwra Rasa with propylene glycol	4.5 mg/0.5ml	Suspension	Oral
II	Standard drug	6	Paracetamol with propylene glycol	9mg /0.5ml	Suspension	Oral
III	Control drug	6	Propylene glycol	0.5 ml	Suspension	Oral

OBSERVATION

Table No. 2 Showing the comparative Analgesic Activity and statistical analysis of Group I (Test Drug), Group II (Standard Drug) and Group III (Control Drug) (n =6)

Sl No	Groups	Initial Reaction Time (in sec)	After Drug Administration Reaction Internal (Seconds) At Time (hr)						
			0.5 hr	1 hr	2 hr	3 hr	4 hr	5 hr	6 hr
I	Test Drug	2.58 ± 0.4916	3.16 ± 0.5164	4.0 ± 0.3162	4.50 ± 0.4472	5.66 ± 0.5164	5.83 ± 1.3291	4.50 ± 0.5477	2.91 ± 0.6645
II	Standard	2.83 ± 0.7527	3.16 ± 0.5164	3.66 ± 0.5164	4.16 ± 0.4082	5.5 ± 0.5477	3.91 ± 0.2041	3.5 ± 0.5477	2.08 ± 0.2041
III	Control	2.75 ± 0.4183	2.5 ± 0.5477	2.5 ± 0.5477	2.7 ± 1.0328	2.9 ± 0.5164	2.83 ± 0.5164	2.66 ± 0.5164	2.0±0

DISCUSSION

The analgesic study was conducted in 3 groups, with 18 albino rats, 06 animals in each group, by Tail-Flick method described by Fukawa et al. The tail was immersed up to 5 cm in hot water at 55±0.50c. The time taken for the animal to withdraw the tail completely out of the hot water was considered as reaction time. After oral drug administration, pain threshold reaction time was recorded at 0.5, 1, 2, 3, 4, 5, 6hr intervals in all the three groups.

In Bruhat Hinguleshwara Rasa (Test Drug - Group I) gradual increase reaction time was noted from 0.5 hr (3.16±0.5164sec) to 4th hr (5.83±1.3291sec) then it was reduced from 5th hr (4.50±0.5477sec) to 6th hr (2.91±0.6645sec). Peak level effect of drug was from 2nd hr (4.50±0.4472sec) to 4th hr (5.83±1.3291sec). Though in 6th hr reaction time was reduced still it has shown analgesic activity. Significant analgesic activity was observed in comparison to Group III (Propylene Glycol).

In Paracetamol (Standard Drug - Group II) gradual increase reaction time was noted from 0.5 hr (3.16±0.5164sec) to 3rd hr (5.5±0.5477sec) then it reduced from 4th hr (3.91±0.2041sec) to 6th hr (2.08±0.2041sec). Peak level effect of drug was from 2nd hr (4.16±0.4082sec) to 3rd hr (5.5±0.5477sec). Significant analgesic activity was noted in Paracetamol (Standard Drug - Group II) than Propylene Glycol (Control Drug - Group III).

In Group III (Control-PG) there was no difference in the reaction time. At 0 hr reaction time was 2.75±0.4183sec and at 6th hr it was 2.0±0sec. It shows that propylene glycol does not possess any analgesic activity.

Test drug dose has shown significant and sustained analgesic activity at 0.5th hr and was up to 6th hr after drug administration, while in standard it was from 0.5th hr to 5th hr only. Analgesic activity of Group I was significant than Group III. Test group has shown similar analgesic activity with standard drug.

CONCLUSION

Significant & sustained Analgesic activity was observed with Bruhat Hinguleshwara Rasa and standard drug. Bruhat Hinguleshwara Rasa having Vedananashaka, Jwaranashaka, Swedajanaka, Agnideepaka, Amapachak, Srotoshodhak and Rasayan properties might have contributed for Analgesic activity, regeneration and rejuvenation process, so rats were active in test group than control and standard.

Scope for further research

Significant and sustained Analgesic activity was demonstrated by experimental study on animals, provided evidence base for textual reference. This study has given further scope for clinical study in different conditions.

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